

CLAIMS

1           1. A method of treating a loose skin surface overlying a collagen  
2           tissue site, comprising:

3           identifying a person suspected of having a the loose skin surface;  
4           providing an energy source with an energy delivery surface;  
5           positioning the energy delivery surface on the loose skin surface;  
6           creating a reverse thermal gradient, wherein a temperature of the skin  
7           surface is less than a temperature of the collagen containing tissue;  
8           delivering a sufficient amount of energy through the skin surface to  
9           contract at least a portion of the collagen containing tissue with controlled cell  
10          necrosis in the skin surface; and  
11          tightening the loose skin surface.

1           2. The method of claim 1, wherein a sufficient amount of energy is  
2           delivered through the loose skin surface without creating a substantial cell  
3           necrosis in the loose skin surface.

1           3. The method of claim 1, wherein a sufficient amount of energy is  
2           delivered through the loose skin surface with a reduced cell necrosis in a skin  
3           layer.

1           4. The method of claim 1, wherein a sufficient amount of energy is  
2           delivered through the loose skin surface and smoothen the loose skin surface.

1           5. The method of claim 1, wherein a sufficient amount of energy is  
2           delivered through the loose skin surface and improve a contour of the loose skin  
3           surface.

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1           6.     The method of claim 1, wherein a sufficient amount of energy is  
2     delivered through the loose skin surface and reduce a scarring of the loose skin  
3     surface.

1           7.     The method of claim 1, wherein a sufficient amount of energy is  
2     delivered through the loose skin surface and reduce a wrinkling of the loose skin  
3     surface.

1           8.     The method of claim 1, wherein the energy source is an RF energy  
2     source.

1           9.     The method of claim 8, further comprising:  
2         an RF electrode coupled to the RF energy source, the RF electrode  
3     including an RF energy delivery surface positionable on the loose skin surface.

1           10.    The method of claim 9, further comprising:  
2         a source of electrolytic media coupled to RF electrode.

1           11.    The method of claim 10, wherein the electrolytic media is an  
2         electrolytic solution.

1           12.    The method of claim 10, wherein the electrolytic media is an  
2         electrolytic gel.

1           13.    The method of claim 1, wherein the energy source is a light  
2     source.

1           14.    The method of claim 11, wherein the light source is a coherent  
2     light source.

- 1           15. The method of claim 12, further comprising:  
2           a coherent light delivery device configured to be coupled to the coherent  
3           light source.
- 1           16. The method of claim 11, wherein the light source is an incoherent  
2           light source.
- 1           17. The method of claim 1, wherein the energy source is a microwave  
2           source.
- 1           18. The method of claim 17, wherein the energy source is an  
2           ultrasound source.
- 1           19. The method of claim 1, wherein the collagen containing tissue is  
2           partially denatured by cleaving heat labile cross-links of collagen molecules.
- 1           20. The method of claim 1, further comprising:  
2           a cooling medium configured to create a cooling of the loose skin surface.
- 1           21. The method of claim 1, wherein the collagen containing tissue is in  
2           a subdermal layer.
- 1           22. The method of claim 1, wherein the collagen containing tissue is in  
2           a deep dermal layer.
- 1           23. The method of claim 1, wherein the collagen containing tissue is in  
2           a subcutaneous layer.

1                   24. The method of claim 1, wherein the collagen containing tissue is in  
2                   facial and muscle tissue.

1                   25. The method of claim 1, wherein the temperature of the collagen  
2                   containing tissue does not exceed 80 degrees C.

1                   26. The method of claim 1, wherein the temperature of the collagen  
2                   containing tissue does not exceed 75 degrees C.

1                   27. The method of claim 1, wherein the temperature of the collagen  
2                   containing tissue does not exceed 70 degrees C.

1                   28. An apparatus for applying energy to a loose skin surface,  
2                   comprising:

3                   an identification means for detecting a loose skin surface;  
4                   an electrolytic media means;  
5                   an electrolytic media delivery means adapted to receive the electrolytic  
6                   media and release the electrolytic media to the loose skin surface;  
7                   an RF electrode means coupled to the electrolytic media means, wherein  
8                   the electrolytic media means delivers energy to the loose skin surface to create a  
9                   controlled cell necrosis and tighten the loose skin surface.

1                   29. The apparatus of claim 1, wherein the electrolytic media is an  
2                   electrolytic solution.

1                   30. The apparatus of claim 1, wherein the electrolytic media is an  
2                   electrolytic gel.

1           31. The apparatus of claim 28, wherein the RF electrode means is  
2 separated from the loose skin surface.

1           32. The apparatus of claim 28, wherein the RF electrode means is  
2 positioned in an interior of the electrolytic media delivery means.

1           33. The apparatus of claim 28, wherein the RF electrode means is  
2 positioned on an exterior surface of the electrolytic media delivery means.

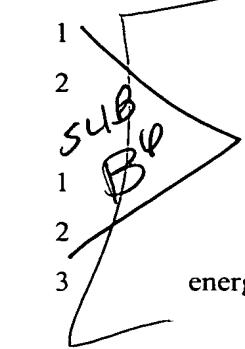
1           34. The apparatus of claim 28, wherein the electrolytic media means  
2 receives sufficient energy from the RF electrode means to create a contraction of  
3 collagen in the skin.

1           35. The apparatus of claim 28, wherein the electrolytic media means  
2 receives sufficient energy from the RF electrode means to deliver energy through  
3 a papillary dermis layer.

1           36. The apparatus of claim 28, wherein the electrolytic media means  
2 receives sufficient energy from the RF electrode means to supply energy through a  
3 reticular dermis layer of the skin.

1           37. The apparatus of claim 28, wherein the electrolytic media means  
2 receives sufficient energy from the RF electrode means to supply energy through a  
3 subcutaneous layer of the skin and an underlying soft tissue.

1           38. The apparatus of claim 28, wherein the RF electrode means is  
2 coupled to an RF energy source.



39. The apparatus of claim 28, further comprising:  
a sensor means coupled to loose skin surface.

40. The apparatus of claim 28, further comprising:  
a feedback control means coupled to the sensor means and to an RF  
source means.

41.✓ A method for treating skin, comprising:

- identifying a person suspected of having a loose skin surface;
- providing an apparatus for applying energy to the loose skin surface, the apparatus including an electrolytic media, a member, and an RF electrode;
- transferring energy from the RF electrode to the electrolytic media to an energy delivery electrolytic media;
- releasing the energy delivery electrolytic media from the member to the skin surface;
- treating the loose skin surface with energy from the energy delivery electrolytic media; and
- tightening the loose skin surface.

42. The method of claim 41, wherein a sufficient amount of energy is delivered through the loose skin surface without creating a substantial cell necrosis in the loose skin surface.

43. The method of claim 41, wherein a sufficient amount of energy is delivered through the loose skin surface with a reduced cell necrosis in a skin layer.

1                  44. The apparatus of claim 41, wherein the electrolytic media is an  
2 electrolytic solution.

1           45.     The apparatus of claim 41, wherein the electrolytic media is an  
2       electrolytic gel.

1           46.     The method of claim 41, wherein energy from the energy delivery  
2       electrolytic media to the loose skin surface creates a controlled cell necrosis.

1           47.     The method of claim 41, wherein the energy delivery electrolytic  
2       media creates a tightening of the skin.

1           48.     The method of claim 41, wherein the energy delivery electrolytic  
2       media creates a tightening of a subcutaneous tissue.

1           49.     The method of claim 41, wherein the energy delivery electrolytic  
2       media receives sufficient energy from the RF electrode to create a controlled cell  
3       necrosis of the loose skin surface.

1           50.     The method of claim 41, wherein the energy delivery electrolytic  
2       media receives sufficient energy from the RF electrode to create a controlled zone  
3       of cell necrosis of the loose skin surface.

1           51.     The method of claim 41, wherein the energy delivery electrolytic  
2       media receives sufficient energy from the RF electrode to create a controlled zone  
3       of collagen contraction of a dermis and fibrous septae of a subcutaneous tissue.

1           52.     The method of claim 41, wherein the energy delivery electrolytic  
2       media receives sufficient energy from the RF electrode to create a controlled zone  
3       of loose skin surface ablation.

1               53.     The method of claim 41, wherein the energy delivery electrolytic  
2 media receives sufficient energy from the RF electrode to create a controlled zone  
3 of skin tightening.

1               54.     The method of claim 41, wherein the energy delivery electrolytic  
2 media receives sufficient energy from the RF electrode to create a controlled zone  
3 of subcutaneous tightening.

1               55.     The method of claim 41, wherein the electrolytic media receives  
2 sufficient energy from the RF electrode to create a contraction of collagen in the  
3 skin.

1               56.     The method of claim 41, wherein the electrolytic media receives  
2 sufficient energy from the RF electrode to create a controlled cell necrosis of the  
3 loose skin surface.

1               57.     The method of claim 41, wherein the electrolytic media receives  
2 sufficient energy from the RF electrode to supply energy through a papillary  
3 dermis layer.

1               58.     The method of claim 41, wherein the electrolytic media receives  
2 sufficient energy from the RF electrode to supply energy through a reticular  
3 dermis layer of the skin.

1               59.     The method of claim 41, wherein the electrolytic media receives  
2 sufficient energy from the RF electrode to supply energy through a subcutaneous  
3 layer and an underlying soft tissue.

1               60.     The method of claim 41, wherein the RF electrode receives a

2 controlled delivery of energy from an RF power source.

1           61.       The method of claim 41, further comprising:  
2                 sensing a temperature of the loose skin surface during delivery of the  
3                 energy delivery electrolytic media to the loose skin surface.

1           62.       The method of claim 41, further comprising:  
2                 sensing a temperature of the loose skin surface after delivery of the energy  
3                 delivery electrolytic media to the loose skin surface.

1           63.       The method of claim 41, further comprising:  
2                 sensing a temperature of a tissue underlying the loose skin surface during  
3                 the delivery of the energy delivery electrolytic media to the loose skin surface.

1           64.       The method of claim 41, further comprising:  
2                 sensing a temperature of a tissue underlying the loose skin surface after  
3                 delivery of the energy delivery electrolytic media to the loose skin surface.

1           65.       The method of claim 41, further comprising:  
2                 sensing an impedance of the loose skin surface during delivery of the  
3                 energy delivery electrolytic media to the loose skin surface.

1           66.       The method of claim 41, further comprising:  
2                 sensing an impedance of the loose skin surface after delivery of the energy  
3                 delivery electrolytic media to the loose skin surface.

1           67.       The method of claim 41, further comprising:  
2                 sensing an impedance of a tissue underlying the loose skin surface during  
3                 the delivery of the energy delivery electrolytic media to the loose skin surface.

- 1           68.     The method of claim 41, further comprising:  
2                 sensing an impedance of a tissue underlying the loose skin surface after  
3                 delivery of the energy delivery electrolytic media to the loose skin surface.

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